

# **PROPOSED REMEDIAL OBJECTIVES REPORT**

**Shannon Road/El Camino del Cerro  
WQARF Site  
Tucson, Arizona**



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## ACRONYMS

A.A.C.	Arizona Administrative Code
A.R.S.	Arizona Revised Statutes
ADEQ	Arizona Department of Environmental Quality
ADWR	Arizona Department of Water Resources
AWQS	Arizona Aquifer Water Quality Standard
bgs	below ground surface
CAB	Community Advisory Board
COCs	Contaminant of Concern
DEUR	Declaration of Environmental Use Restriction
LWUS	Land and Water Use Study
MCL	Maximum Contaminant Level
MDWID	Metropolitan Domestic Water Improvement District
mg/kg	milligrams per kilogram
PCE	tetrachloroethene, tetrachloroethylene, Perc
RI	Remedial Investigation
RO	Remedial Objective
SRL	Soil Remediation Level
SR/ECDC	Shannon Road/El Camino del Cerro
TCE	trichloroethene, trichloroethylene
WQARF	Water Quality Assurance Revolving Fund

## 1.0 INTRODUCTION

The Arizona Department of Environmental Quality (ADEQ) has prepared this Proposed Remedial Objectives (ROs) Report for the Shannon Road/El Camino Del Cerro (SR/ECDC) Water Quality Assurance Revolving Fund (WQARF) site (Site) in Tucson, Arizona.

The ROs for the Site were developed as required by Arizona Administrative Code (A.A.C.) R18-16-406(I). These rules require that ROs be established for the current and reasonably foreseeable uses of land and waters of the state that have been or are threatened to be affected by the release of a hazardous substance above a regulatory or risk-based standard. The rule specifies that the reasonably foreseeable uses of land are those likely to occur at the Site. The reasonably foreseeable uses of water are those likely to occur within 100 years, unless a longer time period is appropriate [A.A.C. R18-16-406(D)]. Reasonably foreseeable uses are those likely to occur, based on information provided by water providers, well owners, land owners, government agencies, and others.

The ROs for the Site are based on the Land and Water Use Study (LWUS) (see Appendix A of Draft RI Report). Not every use identified in the LWUS will have a corresponding RO. Uses identified in the LWUS may or may not be addressed based on information gathered during the public involvement process, the WQARF statutory authority, and whether the use is reasonably foreseeable.

Written comments on this Proposed RO Report will be accepted for a period of 30 days following the release for public comment. If significant public interest exists or if significant issues or information is brought to the attention of ADEQ, the comment period may be extended. The final report will include a responsiveness summary to written comments received from the public during the comment period. Upon completion of the Final RO Report, the Final Remedial Investigation (RI) Report will be available to the public. The ROs must be stated in the following terms: (1) protecting against the loss or impairment of each use; (2) restoring, replacing, or otherwise providing for each use; (3) when action is needed to protect or provide for the use; and (4) how long action is needed to protect or provide for the use [A.A.C R18-16-406(I)(4)].

The next step in the WQARF process, following issuance of the Final RI Report will be conducting the Feasibility Study. The Feasibility Study will evaluate specific remedial measures and strategies to achieve the ROs and propose a reference remedy and at least two alternative remedies which are capable of meeting the ROs.

### Definitions

**Remedial Strategy:** One or a combination of the six general strategies identified in Paragraph B.4 of A.R.S. §49-282.06 and further defined in rules promulgated in accordance with this statute. In general, these strategies are as follows: *plume remediation, physical containment, controlled migration, source control, monitoring, and no action.*

**Remedial Measure:** A specific action taken in conjunction with remedial strategies as part of the remedy to achieve one or more of the remedial objectives. For example, remedial measures may include well replacement, well modification, water treatment, provision of replacement water supplies, and engineering controls.

**Reference Remedy:** A combination of remedial strategies and remedial measures which, as a whole, is capable of achieving remedial objectives. The reference remedy is compared with the alternative remedies for purposes of selecting a proposed remedy at the conclusion of the feasibility study.

**Alternative Remedy:** A combination of remedial strategies and remedial measures different from the reference remedy that is capable of achieving remedial objectives. The alternative remedies are compared with the reference remedy for purposes of selecting a proposed remedy at the conclusion of the feasibility study.

## **2.0 SUMMARY OF CURRENT AND REASONABLY FORESEEABLE USES OF LAND**

The Site currently consists largely of residential, commercial and light industrial areas. The Site lies across the boundaries of both the City of Tucson and Pima County. The area is largely “built-out” and currently neither the City of Tucson nor Pima County have any specific plans to re-develop the area for significantly different land uses. Based on information provided, land uses for the foreseeable future in the Site area are expected to remain similar to the current land uses.

Groundwater contamination in the ECDC Landfill area was first identified in 1983 after Pima County started their Landfill Environmental Studies Program (LESP) to investigate closed landfills. Pima County, ADEQ, and others have performed numerous assessments and investigations at the ECDC Landfill and throughout the Site. Formal ADEQ oversight began in July 1992. The SR/ECDC Site was originally identified as two separate sites; the ECDC and Shannon Road Rillito Creek (SRRC). The ECDC Site was placed on ADEQ’s WQARF Priority List in May 1995. SRRC was added in 1999. In January 2005, ECDC and SRRC sites were administratively combined into the SR/ECDC WQARF Site. Contaminants of Concern (COCs) include tetrachloroethene (PCE), trichloroethene (TCE), 1,1-dichloroethene (1,1-DCE), cis-1,2-DCE and vinyl chloride (VC).

Around 1990, ADEQ conducted a historical search of properties and activities that may have contributed to contamination detected in area groundwater. The search encompassed an area roughly bounded by Roger Road/Sweetwater Drive on the south and Sunset Road on the north. The properties were assessed for the use of solvents and other VOCs, such as petroleum hydrocarbons. The results of the historical research indicated that 13 of the 22 properties within the study area south and north of I-10 may have used solvents or reportedly had VOC detections in soil samples.

Sites identified with potential to impact groundwater quality according to operational history and available analytical data included the ECDC landfill area, former AMRI Oil (Wrecksperts/Western Stucco/Western Trailer), former E.C Winter, and the I-10 corridor area. Further characterization of these areas during the performance of the Remedial Investigation(s), indicated that impacts to the groundwater from site COCs has not been observed from the sites north of I-10 based on available data. Furthermore, several ERAs were conducted to address soil contamination north of I-10, and resulted in removing minor concentrations of COCs originally detected in area soils. The ECDC Landfill area, south of I-10, has been investigated extensively



since the landfill closure in approximately 1978. The area includes known elevated concentrations of the COCs in soil, soil-gas, and groundwater. The landfill was used as a wildcat dumping area and landfill until 1977. Concentrations of COCs in the area of the landfill are likely a result of landfill leachate, and surface spills/disposals that migrated through the vadose zone to the regional aquifer.

## 2.1 REMEDIAL OBJECTIVES FOR SOIL

Typically, ROs for land use are established for those properties known to be contaminated with hazardous substances above a Soil Remediation Level (SRL) or a risk-based level. At the Site, the former ECDC Landfill property is contaminated with concentrations of VOCs in subsurface soil above SRLs. The ECDC Landfill was operated by Pima County for disposal of municipal solid waste between 1973 and 1977.

The former ECDC Landfill is currently zoned I2 for Heavy Industrial Operations. The locations at the landfill where the subsurface VOCs were found at depth above the non-residential SRL are currently capped. Also, the owners of the property have indicated that they plan to continue current use of the area, and there is no indication that the current zoning is likely to change. However, non-residential use of the property does not preclude potential excavation activities that could disturb surface and subsurface VOC contaminated soils. Therefore, the RO for existing and future non-residential use of the Landfill Area properties (or portions of properties) is:

**To protect current and future non-residential uses against possible exposure to hazardous substances within or on the Landfill Area properties. This action is needed at the present time and for as long as the landfilled waste remains at the property.**

Soil sampling has also been performed by ADEQ at facilities within the Site, in addition to the former ECDC Landfill, in order to evaluate other potential sources; however, the concentrations of contaminants detected at those facilities during the RI have been below the residential/non-residential SRLs, or focused early response actions have been completed to reduce soil concentrations to below applicable SRLs. Therefore, based on these data, no ROs for soils are needed for the land uses at those other facilities.

### **3.0 SUMMARY OF CURRENT AND REASONABLY FORESEEABLE USES OF WATER**

Groundwater beneath the Site, is present in the regional aquifer which begins at approximately 150 feet bgs. TCE and PCE contaminant plumes are present above Arizona Aquifer Water Quality Standards (AWQSs) (which are the same as their respective Maximum Contaminant Levels) Results of soil samples and soil gas samples in the area of the ECDC Landfill indicate concentrations in these media persist at concentrations that could provide a continuing source to the regional aquifer.

Because of decreasing water tables, wells taken out of service, and installation of new wells, or wells brought back into service, the number of viable wells within the WQARF Site may change over time. In 2012 (the year chosen to support the Land and Water Use Study) there were approximately 80 wells (including monitoring wells and out-of-service wells) within the study area. These wells were owned by public supply utilities, state and local government, and private entities. The area does not encompass any appreciable perennial surface water.

#### **3.1 REMEDIAL OBJECTIVES FOR GROUNDWATER**

##### *Municipal and Local Government Potable Supply*

MDWID owns and operates six production wells within the study area that supply potable water to local residents. All of the well sites will remain active over the next 100 years. Production could increase at all of the well sites depending upon which wells are replaced but MDWID currently has no plans to drill new wells or modify any existing wells.

The City of Tucson formally adopted a *Water Service Area Policy* in August 2010. The Water Service Area Policy establishes a boundary for Tucson Water based on economic, social and environmental considerations. Tucson Water owns three inactive production wells within the study area. It is possible that Tucson Water may want to bring these wells back online in the foreseeable future based on conversations with field technicians servicing wells in the area. Production well Z-006 is included in annual groundwater sampling for the site.

Based on the information provided, MDWID or City of Tucson does not expect to change the number of wells or the amounts of water removed from the aquifer in the near future. However, MDWID does plan to maintain its current wells, and replace these wells as needed should they become un-usable, and City of Tucson may bring their wells back into use. Based on



information provided by MDWID and City of Tucson, the timeframe and water use are reasonable. The RO for MDWID and City of Tucson use of groundwater is:

**To provide for the current and future municipal use of the regional aquifer threatened or impacted by COC contamination emanating from the Site. This action is needed for as long as the level of contamination in the groundwater resource threatens or prohibits its use as a potable water supply.**

#### *Pima County*

Pima County currently owns and operates approximately 20 wells within the study area. The uses for these wells vary from monitoring groundwater quality to irrigation/industrial water on a standby basis. Based on information provided by Pima County, the timeframe and water use are reasonable. The RO for Pima County use of groundwater is:

**To provide for the current and future non-potable use of the regional aquifer threatened by the COC contamination emanating from the Site. This action is needed for as long as the level of contamination in the groundwater resource threatens its use as a non-potable water supply.**

#### *Private Domestic Use*

There were approximately 30 private well owners identified in the study area as part of the Land and Water Use Study. The water uses for these wells varies from non-potable maintenance equipment, to irrigation, to drinking water.

There are no changes anticipated for the use of the private domestic wells for the foreseeable future. Based on information provided by the private domestic well owners, the timeframes and water usage are reasonable. The RO for private domestic use of the groundwater is:

**To provide for the current and future private domestic use of the regional aquifer threatened or impacted by COC contamination emanating from the Site. This action is needed for as long as the level of contamination in the groundwater resource threatens or prohibits its use as a potable water supply.**